

We claim:

1. A method for monitoring the temperature profile of a high voltage cable that has been installed in a protective duct extending from a first route station to a second route station comprising the steps:

installing a length of fiber optic cable in the protective duct space and extending the fiber optic cable along the high voltage cable between the first and second route stations;

allowing the fiber optic cable to reach thermal equilibrium with the high voltage cable;

conducting pulses of light through the fiber optic cable;

detecting temperature-responsive light scattering phenomenon occurring in the fiber optic cable;

converting changes in the light scattering phenomenon into signals that are proportional to temperature; and

recording the changes of temperature that correspond with various light scattering locations along the fiber optic cable.

2. The temperature profile monitoring method as set forth in claim 1, wherein the step of installing the fiber optic cable is performed by arranging the fiber optic cable and one or more guide tubes in a loose bundle, and propelling the bundle through the protective duct space at least in part by fluid drag forces.

3. The temperature profile monitoring method as set forth in claim 1, including the step of installing first and second large diameter guide tubes in the protective duct space prior to installation of the fiber optic cable, and placing the large diameter guide tubes on opposite sides of the high voltage cable, respectively, in wedging contact positions against the high voltage cable and duct sidewall, and then installing the fiber optic cable in the protective duct space bounded by the high voltage cable, the first and second large diameter guide tubes and the protective duct sidewall.

4. The temperature profile monitoring method as set forth in claim 1, wherein the fiber optic cable installation is performed by first running the fiber optic cable in a guide tube, and then propelling guide tube and fiber optic cable through the protective duct space at least in part by fluid drag forces.

5. The temperature profile monitoring method as set forth in claim 1, wherein the fiber optic cable installation step is performed by first running a guide tube through the protective duct space and then running the fiber optic cable through the guide tube.